

APS Scientific Computation Seminar Series

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Title: An Overview of Lossless Data Compression

Date: February 27, 2023

Time: 1:00 p.m. (Central Time)

Location: Join ZoomGov Meeting
<https://argonne.zoomgov.com/j/1618725901?pwd=OVZxVGRvK2kwdkN2T3Zwd01TSUVXZz09>
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Hosts: Mathew Cherukara and Nicholas Schwarz

Abstract: Large research infrastructures, such as synchrotron facilities, generate large amounts of data every day (up to a few tens of terabytes). This data is very valuable as it is the result of complex scientific experiments that can be performed only once. Storing this data efficiently in addition to previously accumulated data, being able to transfer it quickly, and accessing it efficiently for visualization and scientific analysis is both a necessity and a challenge that digital data compression can address. In this review of lossless data compression, I will present the metrics to use when considering compression from a temporal perspective, some strategies for improving compression and some evaluation tools for generic, image and video compression algorithms with an example based on tomography data obtained at SOLEIL.